COAL MINING

UNIVERSITY MICROFILMS
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ANN ARBOR, MICH

November, 1959

Volume 36, No. 11

Highway

Lima 2400 and Allis-Chalmer HD-21 at Shawville Coal Co., Shawville, Pa.

A-3904A

HIGHWAY EQUIPMENT COMPANY
6465 Hamilton Ave. • Pittsburgh 6, Pa.
40 Hoover Ave. • Du Bois, Pa.
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...LIKE MONEY IN THE BANK!

"Our new 30-B shovel and our newest 88-B dragline are both working out very well. If they just match our other Bucyrus-Eries we'll be happy!

"Our 38-B shovel, for example, is 10 years old and hadn't had a major overhaul until now. It was still in good operating shape but we just felt it was time to overhaul it.

"Our other 88-B dragline is six years old and really travels all over this hilly countryside. I'd say the tracks on 88-B's are about the best tracks on any machines!"

... Mine owner Robert Bailey

Robert Bailey operates three pits high up in the rolling hills around Gorton, Pa., uses Bucyrus-Erie for both stripping and loading out coal.

Why not enjoy Bucyrus-Erie top performance yourself? Beckwith Machinery Company will be happy to help you analyze your present equipment, show you how a new Bucyrus-Erie can help make your operations more profitable.

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MACHINERY CO.

PITTSBURGH, PA. BRADFORD, PA.
CLEARFIELD, PA. ERIE, PA.
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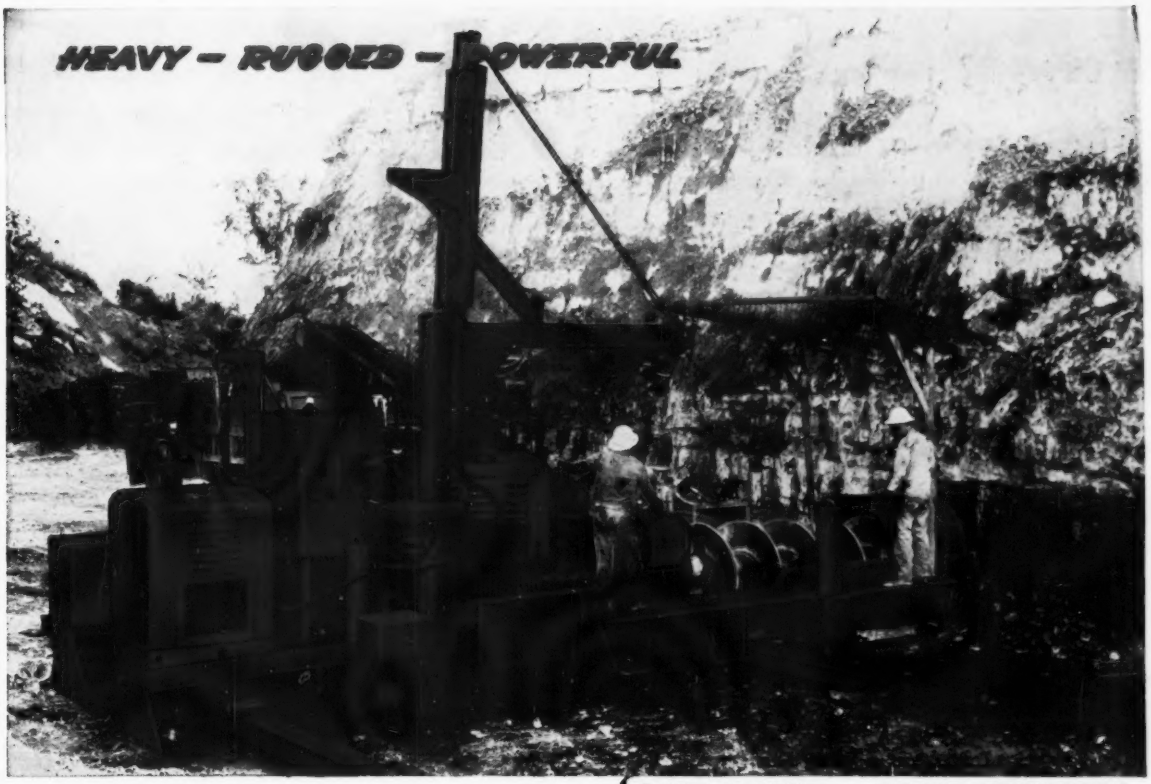

LOWEST COST PER TON WITH McCARTHY AUGER DRILLS

LIVE POWER • RAPID TRAVERSE • EASY COUPLING PINS • SAFETY AUGER GUIDE SIDEWAYS—FORWARD AND BACK-MOVING SKIDS

COAL RECOVERY *"Walks" from hole to hole to auger high-quality coal*

An Ohio miner removes 550 tons of coal in each 8-hour working day with this Model 14 36-42x12' McCarthy drill, operated by two men. He drills 42" dia. holes 144' deep. Auxiliary conveyor eliminates spillage at hole. It operates on either side of drill for working blind cut. Twelve different models of McCarthy Coal Recovery Drills mine low-cost "bonus coal".

Manufacturers of Drilling Equipment Since 1901

SALEM

THE SALEM TOOL COMPANY

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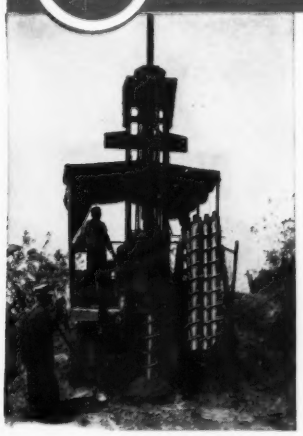


VERTICAL

MODEL 106-24

World's Fastest Heavy-Duty Vertical Auger Drill

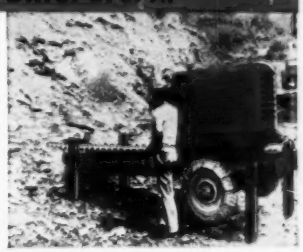
Bores faster, deeper, larger dia. holes than any other auger drill. New gear reduction unit slows auger rotation for operation in hard rock formations. Drills 8" and 9" dia. holes readily in shale and sandstone formations, drills larger dia. holes up to 24" dia. in softer formations.

HORIZONTAL

MODEL 104

Lowest Drilling Costs per Foot, Self-Propelled or Truck-Mounted

Bores up to 12" dia. holes to 150' depth faster, cheaper than any other horizontal drill. Requires less working space, saves many man-hours . . . operates easily in tight, hard-to-reach locations.



FINGER-TIP CONTROL

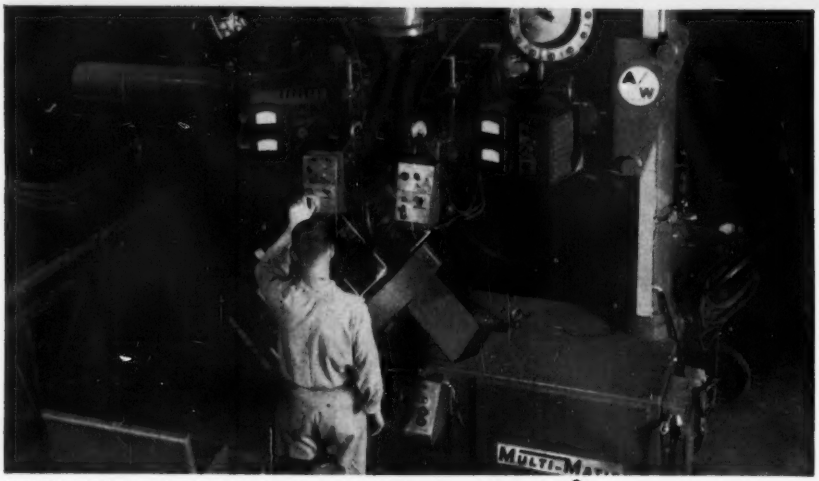
Gives Desired Rotating Speed of Auger

HYDRAULIC FEED

Provides Any Speed up to 6 Feet per Minute Horizontal Feed of Drill

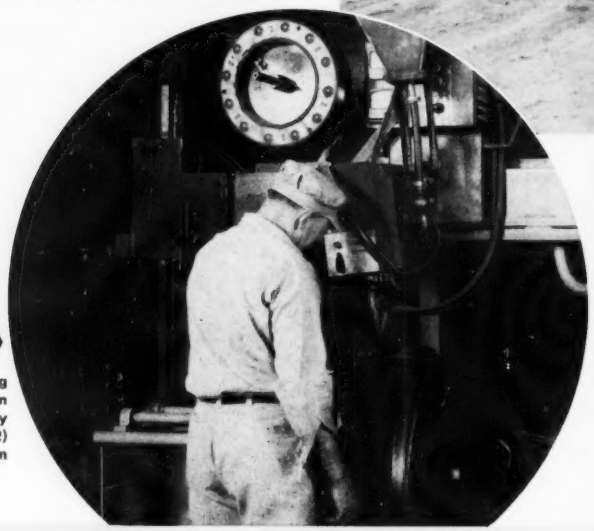
Published monthly by Modern Mining Publishing Company. Publication Office—Advance Printing & Litho Co., Erie, Pa. Editorial and Executive Offices—Erie, Pa. Pittsburgh Offices—P. F. JASIK, Publisher, 4575 Country Club Drive, Pittsburgh 36, Pa. Price: In the United States, $3.00 year; all other countries $5.00. Single copy 25 cents. Entered as second class matter at the Post Office at Erie, Penna., under the act of March 3, 1879.

Why BECKWITH is able to rebuild BETTER and with MORE



Multiple rebuilding of single or double flange rollers is quickly and accurately accomplished with this new arc welder. Under Beckwith's "Fair-Price" Roller Exchange Plan you pay only for the cost of bringing your trade-in roller up to factory new-parts standards, based on the class of wear of your old roller. You pay a fair price instead of a flat price.

In our "Rail Reviver Plan" we thoroughly inspect your track links, replacing pins and bushings with genuine Caterpillar new parts. We then carefully align a full length of track rail on our modern welding machine and submerge the links in flux. Twin welding heads travel the full length of the track, guided by a photo-electric eye, welding both rails simultaneously and skipping the areas between links. The rebuilt rails are carefully checked out for proper build-up with special gauges which assure you of perfect uniformity of weld from start to finish.



New model submerged arc-welding machine is shown rebuilding a used idler. Our "Idler Rebuild Offer" gives you free information to determine (1) whether your idlers are worn within limits so they can still be built up with weld to make them good as new, (2) whether it is too soon to rebuild or (3) advice that they have worn beyond the most economical rebuild limits.

DANGER! There are wear limits beyond which it is not practical to go if you are considering rebuilding your running gear. There is also the danger of wasting money by rebuilding too soon. See any Beckwith field representative or check with our Service Managers to be sure that your track components are not worn beyond the point of economical rebuilding or to be certain that they actually do need build-up at this stage. We'll give you the true facts.

Track links, rollers and idlers
SAVINGS FOR YOU . . .

New Department Offers Complete Automatic Welding Facilities

Tractor undercarriage components can now be rebuilt to their original sizes and specifications at amazingly reasonable prices. The establishment of a completely new Welding Department gives Beckwith the finest build-up facilities East of the Mississippi. Only the latest, most efficient automatic welding machinery was selected in order that we might produce the best work in the most efficient manner . . . and pass the savings on to you.

Our new facilities are manned by experts who have been specially trained in the operation of these machines so that you will receive the quality of workmanship and service which are your rightful "Bonus" as Caterpillar* machine owners.

Add thousands of hours of life to your running gear by taking advantage of our "Fair-Price Roller Exchange Program," the "Rail Reviver Plan" and Beckwith's "Idler Rebuild Offer." Our service men, parts personnel, salesmen and Equipment Service Consultants will be happy to discuss the time- and money-saving features of these various programs. Better still, we would be happy to have you inspect our new department whenever you are in the vicinity of Beckwith's Pittsburgh plant.

*Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

BECKWITH MACHINERY CO.

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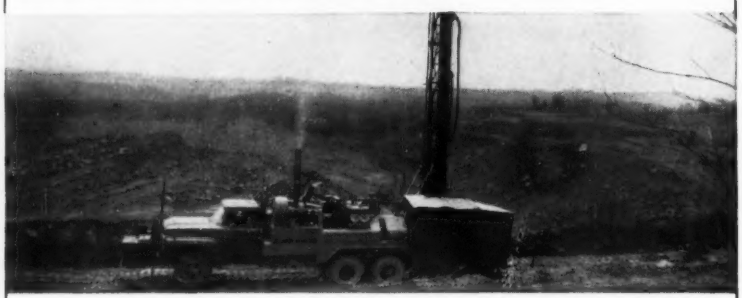
CLARKSBURG, W.VA. • U.S. Rt. 20 • Phone Main 4-5476

6550 Hamilton Avenue • PITTSBURGH • Phone: MOntrose 1-6900

Harmon Creek Coal speeds stripping with

DAVEY

Rotary Drills



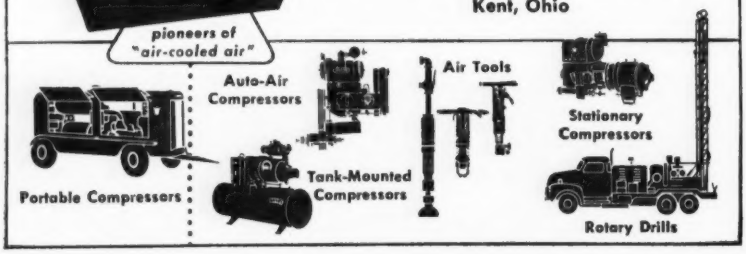
Like other leading mine operators, Harmon Creek Coal Corporation, Burgettstown, Pa., speeds drilling and cuts costs with Davey Rotary Drills.

Daveys can be mounted on any make of truck . . . move fast between blast holes . . . are easy to set in position . . . ideal for low cost drilling. Offered in 8 truck-mounted models with capacities to 3,500 ft. Tractor-mounted drills also available. A-236A

Write for Bulletin E-702S!

DAVEY pioneers of "air-cooled air"

DAVEY COMPRESSOR CO.
Kent, Ohio



● A new crush-proof flip-top box for individually wrapped items in the M-S-A First Aid Kit has been announced by Mine Safety Appliances Company, Pittsburgh.

The new container has been designed with stronger construction and easy accessibilty to a variety of multiple-use items, including adhesive bandages and antiseptic swabs. Top flips open and shut for frequent use without tearing. Contents can be more easily extracted.

For storage, the container is completely sealed against entrance of dust or grime.

M-S-A first-aid items packed in the new flip-top box are ammonia inhalants, iodine brushes, merthiolate swabs, plastic and waterproofed adhesive bandages, compress bandages, and Foille liquid and ointment for burns.

● Production and mechanical advantages of the new D9 series E Tractor and features of the exclusive new Power Shift transmission, are given in a new six page brochure released by Caterpillar Tractor Co.

Major improvements to the Cat D9 Tractor include the availability of the new transmission, an increase to 335 flywheel horsepower, a new equalizer bar arrangement that gives greater stability, hydraulically controlled bulldozer and a new hydraulic control and an improved under-carriage.

Redesigned undercarriage components include sprockets with increased tooth thickness and improved tooth design; larger pins and bushings; increased grouser height and larger bolts and nuts; bigger, heavier and taller track links with pitch increased from 9 inches to 10¼ inches; and use of a new, deeper hardening steel alloy which gives up to 40 per cent longer life.

Copies of the brochure can be obtained from all Caterpillar Dealers, or by writing for form 33544, Caterpillar Tractor Co., Peoria, Illinois.

COAL MINING

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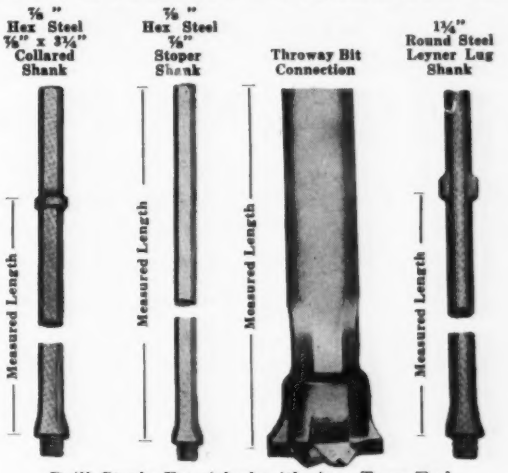
TOOLS from MARS

Pittsburgh Call Zenith 0861 • Mars Call National 5-4688


⅞ " Hex Steel ⅞" x 3¼" Collared Shank
⅞ " Hex Steel ⅞" Stoper Shank
Throway Bit Connection
1¼" Round Steel Leyner Lug Shank
Measured Length
Measured Length
Measured Length
Measured Length

Drill Steels Furnished with Any Type End
Reconditional Service

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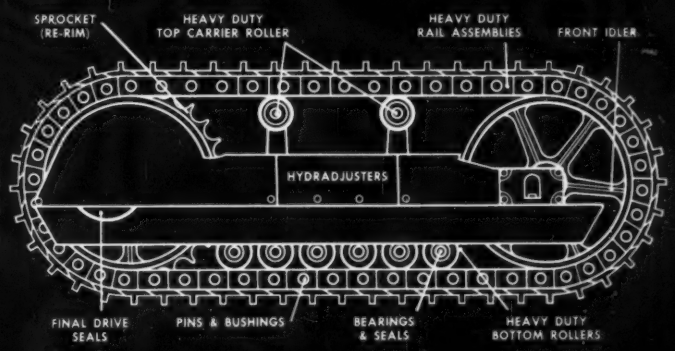
QUALITY REPLACEMENT PARTS IN STOCK FOR "CAT," "AC," "IHC"



and.

In a most modern and well equipped rebuilding shop

REBUILD TO STANDARD

TRACK & GROUSERS • FRONT IDLERS
BOTTOM ROLLERS • SPROCKETS (RE-RIM)

MAXIMON MACHINE COMPANY, INC.

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How **YOU CAN EQUAL** these Drilling Records:

What the owners of **REICH** Drills are doing:

"80% more hole drilled by Reich 650 in shale and medium sandstone, than by another hydraulic powered rotary of same rated capacity."

"Weighing 6½ tons less than a crawler rotary that cost almost twice as much, Reich 650 drilled 7⅜" holes approximately as fast in hard tough sandstone."

"238 ft. per hour in medium sandstone and shale drilled by Reich 750 in 3¼-hour test, 40 to 50 ft. holes— including all moves. 450,000 ft. of hole in 9 months, single shift."

"14.3 ft. per hour in very hard trap rock, 6⅝-inch hole, drilled by Reich with down-the-hole hammer. Competing drill 11.9 ft. of 6½-inch hole."

"Very hard rock, Reich 650 with 6⅝-inch down-the-hole tool drilled 28 ft. in 31 min. Other rig with 6-inch tool, 29½ ft. in 60 min."

"In one month, 3,106 ft. with Reich; our other rig in same material, 750 ft."

"We drilled 9,049 ft. in 85 days, 8 hrs. a day with Reich; with churn drill, 2,806 ft."

(Full details of the above cases— and many more— sent on request)

You must have—*to equal the above production— these improvements . . .*

Infinitely variable speed of drill rotation, so that your operator can instantly hit the exactly right speed for every stratum. Any drill rig with only two or three rotation speeds *works at wrong speed most of the time.* The Reich makes far more hole— with lower bit cost, because of correct speed and pressure.

Easiest operation, with minimum of control levers and no "strong-arm" levers— all controls actuated by hydraulic power. **A real one-man rig.** Your operator is faster, all day long, when he's running "the easiest operated machine built"— what owners call their Reich rigs.

Quickest stem loading. The Reich's faster stem loading saves time and money on every hole. Less than a minute to add a drill stem, with either the Barrel Loader or Hydraulic Loading Arm— compare with the time needed on other drill rigs.

Steadiest service— that you get from the drill that's built so much stronger that *you have to see it to believe it.* Experience has shown us where extra strength is needed— and we put it there. **Compare** Pumps, Motors, Gears, Frames, other vital parts— much sturdier, saving you valuable drilling time and many dollars of upkeep expense.

See the *Better Design* that's back of the

REICH Drill's

Bigger Production — WRITE, WIRE or PHONE

FRANK SWABB EQUIPMENT CO.
Hazleton National Bank Bldg.
Hazleton, Pa., Phone Gladstone 5-3658

Do You Know?

● A gradual increase in the use of gas-filled transformers was predicted.

The advantages of gas as a transformer insulation rather than liquids were reported to the American Institute of Electrical Engineers.

Gases can be non-combustible, and, although they may decompose during accidental internal arcs, the pressures developed are only a fraction of those produced by the same arcs in liquid-filled transformers.

Furthermore, the pressure-relief device in gas-filled transformers is much more reliable because of the small mass being moved during the fault and the compressible character of the gas.

* * *

● Infections that have become resistant to antibiotics may soon take more lives than have been lost in some wars, a surgeon warned.

Dr. I. S. Ravdin, University of Pennsylvania School of Medicine, speaking at the scientific colloquim of the Northwestern University Medical School centennial, warned of the dangers of mass use of antibiotics while discussing problems now facing doctors.

In spite of the fact that bacterial geneticists very early warned the medical profession that they must understand the basic law of bacterial behavior, it was not long before doctors were again faced with the organisms which, while initially vulnerable to these newly found agents, had, because of indiscriminate use, become resistant to them.

The entire fault does not lie with the doctor, however, Dr. Ravdin pointed out. Many patients insist on receiving antibiotics which are capable of producing as much harm as the good they do when properly given, he said.

Another problem scientists face today, he continued, is the mystery of malignancy. More specific detecting tests and better methods of therapy are needed, he added.

"In spite of all the splendid fundamental and clinical research which is being done in this country, the practitioner finds it difficult to sift the wheat from the chaff, and the families of those suffering from widespread malignant disease wonder whether members of the medical profession are withholding information of value in the treatment of these patients," he said.

It is unthinkable that dedicated investigators would do this, he continued, but many people are not convinced that this is true. He then charged that certain members of the medical profession have "wittingly or unwittingly" encouraged people in this belief.

HERE AND THERE IN THE COAL INDUSTRY

● George E. Owens, president, Imperial Coal Corp., was reelected president of Central Pennsylvania Coal Producers Association and the Eastern Bituminous Coal Association. Other officers include Vice Presidents Richard T. Todhunter, Jr., president, Barnes & Tucker Co., and Robert H. Seese, assistant general manager, Berwind-White Coal Mining Co. Robert T. Laing is executive director and secretary-treasurer.

* * *

● Paul Morton, president of Cannelton Coal Co., Cannelton, W. Va., was reelected president of Kanawa Coal Operators Association at the annual meeting Thursday at Charleston, W. Va. P. H. Fitzgerald, general manager of Fields Creek Coal Co., Inc., Marmet, W. Va., was elected vice president and L. Newton Thomas, president of The Carbon Fuel Co., Charleston, was reelected treasurer. Quin Morton III was reelected executive secretary. The membership also elected its board of directors.

* * *

● Herbert E. Steinmann, Jr., Masontown, Pa., has been appointed Chief Mining Engineer at the Vesta-Shannopin Coal Division of Jones & Laughlin Steel Corporation, it was announced today by W. E. Hess, J & L's Manager of Coal Mines.

Mr. Steinmann, who was Assistant Chief Mine Engineer, succeeds the late N. A. Borzella.

Employed at the Vesta-Shannopin Division since 1950, Mr. Steinmann also has been employed by the Pennsylvania State Highway Department, DuPont Company, Riggs Distler and Co., Hayden Chemical Corporation, F. H. McGraw and Co., and the Rocket Research Department of the U. S. Navy. He held various designing, drafting, and engineering positions with these firms.

A native of Fayette City, Pa., he attended schools in Masontown, Pa. He was graduated in mechanical engineering from the Pennsylvania State Extension College, Uniontown. He also attended West Virginia University and completed courses in coal preparation at the Pennsylvania State University Extension.

* * *

● A colorful, fast-moving motion picture introducing and illustrating a new concept in big tractor power shift transmissions is now available for showing through the dealerships of Caterpillar Tractor Co.

The 11 minute sound film covers on-the-job performance of power shift equipped Caterpillar-built Tractors in various phases of earthmoving work, pinpointing the cycle time reduction possible through one-lever shifting for forward and reverse. A detailed explanation of how the transmission arrangement functions is also made, showing how power is partially diverted through the torque converter and also sent directly to the transmission from the engine.

Persons interested in viewing the motion picture should contact their local Caterpillar Tractor Co. dealer and arrange for a showing.

Man and His Education

• Man evolved education because he learned he did not know enough about new things that had to be known to keep up with progress in this world. Education is the name for learning.

Education is, primarily, the application of what man learns to advance himself or to help the progress of humanity as a whole. Learning to keep up with progress enables man to earn more, so that he can live better, and it makes his work more tolerable. Everything man learns to do better today prepares him that much more for what he will have to learn to do tomorrow.

In industry, man's greatest value in learning is in the things he develops for his betterment as well as for the betterment of the competitive standing of his industry. In industry, at the moment, one of the primary reasons for education is to better understand the workings of science and instrumentation. A better understanding of science and instrumentation will take burdens off man's back, will speed up production of his products and services and will give all a fuller life.

The 18th World Series of Coal Mine Safety

● On this earth nothing is permanent. Change rather than immutability is the rule of the Universe.

Our industrial technology is requiring a more highly trained working personnel in all industry. Advancing industrial technology is bringing about an intellectual revolution in all humanity. That quiet technological revolution is drastically alerting the nature of coal mining work. Starting with crudely wrought hand tools that quiet revolution is bringing about batteries of intricate power-driven machines controlled by minds trained in special skills.

Technology in the form of automation will play a big part in the American coal industry's ability of the future. Manual skill is the basis for all technology. The coal industry, therefore must put to work its best brains to develop a technology that will not only reduce accidents but will permit production of its products at a price in keeping with competitive fuels.

Productivity, manual or technological, is the relationship between units of output and factors with which output is achieved. When manhours are wasted through accidents the rate of productivity suffers, thus jeopardizing the competitive position of the entire industry.

Never has a machine been built that did not have safety problems. A good safety program must therefore be in effect at all times. A good safety program requires a cooperative fusion of many branches of the directing personnel. A feeling for safety must permeate an entire organization from top to bottom. No one man nor any one group however dedicated can assure good over-all performance of a safety program. Cooperation, mutual recognition, respect, confidence, are the components of a successful safety program.

Forty-three teams competed at the 18th World Series of Safety held at Buffalo, N. Y., the week of October 5th. In the First Aid contest the team from the Clinchfield Coal Company's Compass Mine, Clarksburg, West Virginia won first place. In the Mine Rescue competition, first place went to the team from Mine 22 of the Bethlehem Mines Corporation, Jenkins, Kentucky. Combination First Aid and Mine Rescue honors were won by a team from Mine 21, Bethlehem Mines Corporation, Jenkins, Kentucky.

Left: R. L. Watt, Page Engineering Co., H. E. Bowser, Bowser Coal Co., Dick Anderson, Anderson Equipment Co. Peter Suennen, Manitowoc Engineering Corp., David R. Taylor, and Paul Smith, Anderson Equipment Co.

Left: Ray Turner of Turner Bros., S. B. Maximon and C. T. Lytle of Maximon Machine Co., T. P. McCarthy, Watson Equipment Co., Paul Turner and M. Urey of Turner Bros., Earl Glass of the Western Penna. Coal Operators Assn.

Left: J. E. Ehlert, Euclid Div. General Motors, H. Gaiser, Anderson Equipment Co., J. V. Granny, Whitmyre Equip., Co., Ed M. Hawk, Hawk Bros., H. K. Christy, Coal Broker, Fred Hawk, Hawk Bros., E. Stamp, Salem Tool Co., Bill Carpenter, Anderson Equip. Co.

Annual Meeting Independent Mineral Producers Association

12:15 P. M.—Marine Room

MEMBERSHIP LUNCHEON

Business Meeting and
Election of Directors
Members Only
William L. Harger, Presiding

———o———

2:15 P. M.—Ball Room

AFTERNOON MEETING

"Selling Coal to the United States Government"
J. Edward Hibline, Jr., President
J. E. Hibline Company
Baltimore, Maryland

"Regeneration of Spoil Banks in the Bituminous Region"
Joseph E. Ibberson, Chief
Forest Advisory Services
Department of Forests and Waters

"An Outdoor Writer-Conservation Editor Comments on Bituminous Coal Stripping"
Roger M. Latham, Outdoor Editor
The Pittsburgh Press
James P. MacFarlane, Presiding

———o———

6:00 P. M.—Blue Room

RECEPTION AND COCKTAIL PARTY

Hosts

Allied Equipment Corporation
Anderson Equipment Company
Beckwith Machinery Company
Amos Dolby
Keystone Pipe and Supply Company
Maximon Machine Company
Page Engineering Company
Penn Industrial Supply Company
Ringgold Industrial Supply Division
Ringgold Chemical Division
Frank Swabb Equipment Company
Watson Equipment Company
H. Elmer Whitmyre

———o———

7:00 P. M.—Ball Room

ANNUAL DINNER

Welcome ---------- William L. Harger
Toastmaster ---------- F. H. Mohney
Address ---------- Louis H. Roddis, Jr.
President
Pennsylvania Electric Company

Planning For More "Smooth" Days

By William J. Milford

● "Man, what a day! It seems like just about every other day's work is like that recently — wish more of them could run smooth like last Tuesday and Wednesday."

The coal company executive mak the foregoing comment to his wife upon arriving home at the end of the day was expressing a wish repeated, without a doubt, in thousands of other executive's homes just about every day.

Those "smooth" days occur too infrequently. If there were more of them and less of their counterpart any executive's job would be much more of a pleasure in life.

Making more of those business days smooth ones is by no means difficult. Many executives seldom have any other kind. One thing is certain, insofar as they are concerned, and that is such smooth business days are not accidents nor matters of pure luck. Everyone of those men plan their work routines carefully to make them possible.

What do they do? Here are some of the steps they take which make more such days an actuality; steps any reader can adapt to his own work-a-day methods.

Start planning "tomorrow" today — That's a big key to letting any business day become smoother and smoother. Most of the things which happen during a business day that contribute to such a situation are unexpected and unplanned happenings.

If we set aside part of each day just before quitting time to plan what we will do on the day following we have much greater assurance of a smooth tomorrow. Usually such planning takes only five or ten minutes of time. And it produces well worthwhile results.

Carefully scanning over the schedules of the next day, looking ahead to what may come up and disturb the smooth routine and other such steps are part of such planning. Those five or ten minutes given to this step can, day after day, be our assurance the next business day will be a much more pleasant one at any time of the month.

Plan to avoid unpleasant "stack-ups"—Our roughest days are usually those in which a number of "must do" things have accumulated and cannot be put off any longer. Such stack-up of unpleasant chores can make any executive's day a nightmare. The tough part of it is that they are seldom handled in any one day—they usually run over day after day, accumulating others as they go along.

One method is to leap at the opportunity to handle every such routine the moment it occurs — never put it off and give it a chance to rough up one of those tomorrows.

Another is carefully re-scheduling the monthly chores for which we have no pleasant feeling; things which must be done and which we invariably put off as far along into the month as possible. Scattering them out helps lessen the load on any one day; enables us to make every day a smoother one.

Put routine systems to work for you—One of the things which help create rough days in any executive's business life is commonly known as "routine." Routine in itself is never as bad to handle as it seems. Poor planning of such routines is usually what makes them unpleasant.

Scattering them out so one does not run into another too frequently; delegating them to others in the office and for that matter it is often possible to completely eliminate some of them—these are profitable steps one can always take in this area.

Get the trouble makers out of the way first—Some of our chores are always more unpleasant to handle than others; they are real trouble makers in our business day. Few of us like to handle them and most of us put off doing so until we have no other choice.

Invariably the executive noted for his smooth business days is the man who tackles these trouble makers first in the day's schedule. He long ago found that each hour they were put off only made them more difficult to handle. He also found that as long as they were hanging over his head that day had a tendency to disturb everything else he had to do.

So when he decided there was just one way to handle them — tackle them all first thing each morning and get rid of them—he found everyone of his business days became more pleasant and smoother to take.

Spread the "peaks" out — don't let too many of them come at you in any given day. These peak periods of work cannot be put off and usually we have given them so much attention we've minimized them insofar as they can be reduced now.

But there's one more step we can take. Spread them out over the day, over the week or over the month—the latter step if at all possible to do so.

Spreading out such peaks keeps the tensions involved therein from piling up on us as well as makes each easier to handle. Whenever and wherever it is possible to do so this is a definite assurance that everyone of an executive's work days can be smoother and more relaxed.

Get others to help — How many of the things we do each day which upset us could have far less adverse effect if we sought the help of others in handling them? Usually such needed help will amount to only a small contribution from this other individual and once we learn to use this system we can do the same for him.

Check carefully over some of those things which have made particular days rough ones — how many could have been handled much easier and with less disturbance if we had called for help in each case?

How many "ancient ways" of doing things are still part of the routines of your firm? Wherever even one single such business procedure exists there can be found a most unnecessary cause of rough business days for that executive.

The marvelous developments in handling all sorts of business procedures and routines have been one of the greatest contributors to smooth business days for executives everywhere. One's neglect of these through hesitancy to change old routines is definite assurance there will be more and more such rough business days in one's career ahead.

Outside interference from the people with whom we work, those with whom we do business and others on the management side of the company set-up can always contribute to those rough days.

Some can be eliminated when the executive definitely decides he is no longer going to put up with them. Others can be handled by working out better methods of taking care of chores which must be undertaken with others. Many a man, through his own good nature and desire to be known as a pleasant fellow, has put up with such interferences in his business life when only a bit of firmness was needed to rid himself of this disturbance to an otherwise smooth business day.

Hold down irritations and chiefly those caused in disagreeable situations where tempers rise and nerves become unbalanced. If we "stop and count ten" we will refrain from many actions which otherwise would build up to high tension creation. Such situations when not completely controlled can disrupt an entire day no matter how many other precautions have been taken to assure it being a smooth one.

This is of importance even in those situations where we keep everything under control until alone once again and then "blow our stacks" in privacy. Neither procedure contributes anything to the smooth day.

All of the foregoing steps can be used to eliminate those rough spots from an executive's busy day. Usually it will take only two or three to do the job for a specific individual.

It is of first importance always to approach the problem with the positive frame of mind which sets forth that smooth days can be accomplished. A negative approach, based on rough periods being inevitable, is simply surrendering to them and making certain those them and making certain those smooth business days will be few and far between in the future.

on a demonstration

YOU WILL SEE

CAT No.14 MOTOR GRADER

CAT No.12 MOTOR GRADER

CAT No.112 MOTOR GRADER

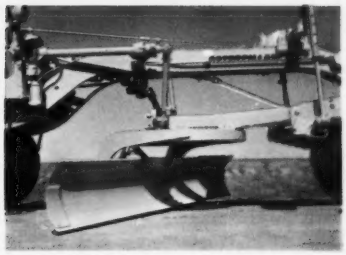
THE BIG DIFFERENCE

THE BIG DIFFERENCE

why contractors buy twice

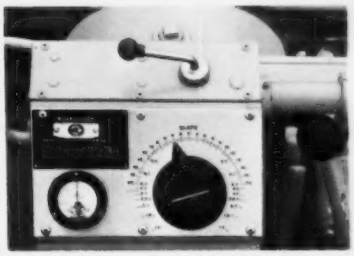
YOUR
CATERPILLAR

THESE FEATURES MAKE THE DIFFERENCE:

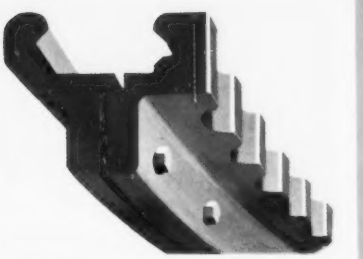


Big blades with ample throat clearance are carefully shaped to roll up big loads. Drawbar and circle are designed for full 360° blade rotation. Also, high front axle clearances provide ample room for straddling windrows.

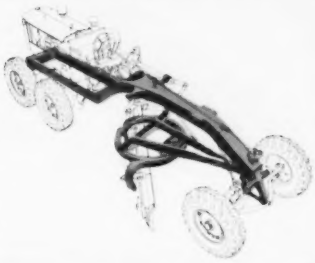
Mechanical blade controls are quick and sure. Precise blade adjustment is easy, "anti-creep" lock makes blade stay put under load. A wide range of blade positions is available from the operator's seat on Caterpillar Motor Graders.



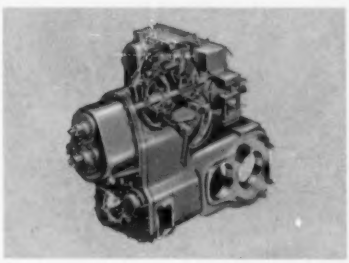
Optional. The Preco Automatic Blade Control increases efficiency on many motor grader applications. Now transistorized, the unit automatically maintains blade-slope within ½" in 10'. Cuts fine finishing time as much as 50%.



New curved side shift rack is split to provide positive contact of the rack with other control gears. Simple adjustment for wear keeps machine operating at top efficiency at all times. Exclusive on the Caterpillar No. 14 Motor Grader.



Rugged, box-section frame has ample strength to match engine power, resist bending and warping. Caterpillar Motor Graders are built throughout to stand up month after month on the hardest jobs, doing the hardest work.



Exclusive oil clutch. The most advanced clutch design ever offered in a motor grader. Can operate up to 2,000 hours without adjustment. With reduced clutch wear, Cat No. 14 and No. 12 Motor Graders can spend more time on the job!

as many CAT Motor Graders as all others combined

Most contractors buy Caterpillar because there *is* a big difference in motor graders. Regardless of job conditions or machine application, Cat Motor Graders have proved their leadership through superior performance.

MORE PRODUCTION

In high volume grading, fine finishing, or rough ditch cut work, moving material quickly and easily is traditional with Cat Motor Graders.

LOWER TOTAL COST

Cost records prove that on *low total cost* Caterpillar Motor Graders are the best investment. They are built to do more work at lower cost with less down time than any other make.

HIGHER AVAILABILITY

All Cat Graders base their ability to perform heavy-duty, round-the-clock work on such proven features as balanced design, a dependable power plant, tubeless tires and many others.

GREATER RESALE VALUE

The big difference is readily apparent in trade-in values. Even after thousands of hours of hard work, Cat Motor Graders are worth more!

We are ready any time to demonstrate a Cat Motor Grader on your job. There's the 150 HP, 29,280 lb. No. 14 for big performance and high productivity; the 115 HP, 23,155 lb. No. 12 for superior work ability; and the 75 HP, 20,805 lb. No. 112 for low initial cost and maximum versatility.

Call us today and name the date!

Quality leader of the Motor Grader field–

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CATERPILLAR
DEALER

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930 Kinnear Road COLUMBUS	
2807 Reynolds Road TOLEDO	
U. S. Route 250 CADIZ	
4000 Lake Park Road YOUNGSTOWN	

WALKER
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Route 60 East BELLE	W. VA.
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CM-9V

YOU WILL SEE ...the BIG difference in dealer service

There *is* a big difference in dealer service. To your Caterpillar Dealer, service means much more than "repairs." Caterpillar Dealer *service* starts with helping you select the right machine with attachments and matched equipment to handle your job most efficiently. Part of our *service* includes conducting training schools for your operators and servicemen, to help them understand Cat machines and help you get maximum production. *Service* also includes check-back to make sure the machine is delivering top-grade performance. *Service* includes a willingness to stand behind the machine — to back it with parts and service.

That's why we say, "Look to the Dealer behind the big yellow Caterpillar machines." See the big difference — and you'll be satisfied *only* with Caterpillar-built machines — sold, serviced and backed by your Caterpillar Dealer and all his facilities!

SEND FOR THIS FREE MOTOR GRADER BOOKLET . . . TODAY!

Caterpillar Tractor Co.
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I want more facts on Cat Motor Graders. Send me literature, no obligation, of course.

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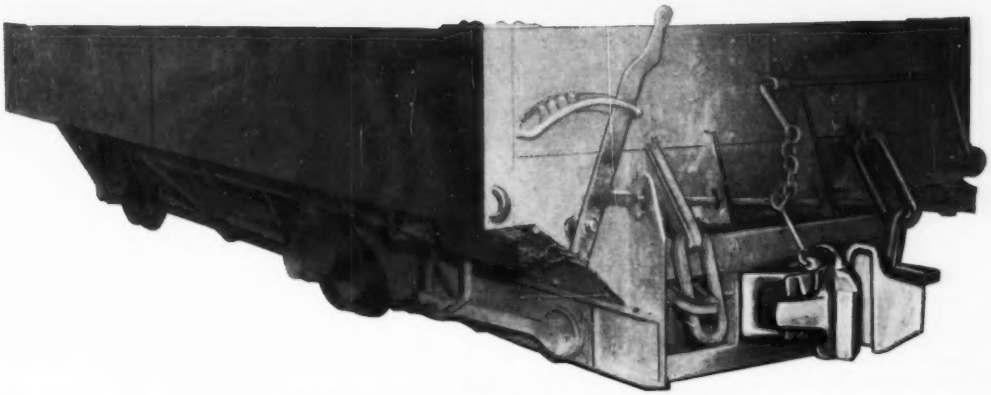
Name the date . . . We'll demonstrate
You'll see the BIG difference

Labor and Maintenance Savings in Mine Car Haulage



4-wheel car with Willison Automatic Coupler.

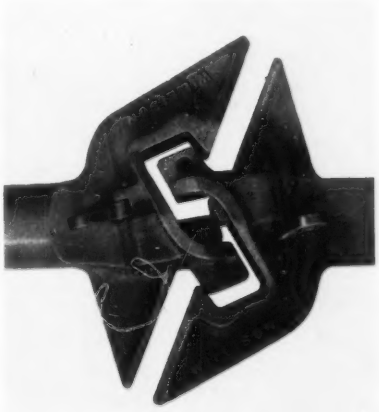
COAL MINING EXAMINES REASONS BEHIND INCREASED USE OF AUTOMATIC COUPLERS AND RUBBER CUSHIONING DEVICES

● With coal operators constantly on the lookout for possible savings in both labor and maintenance, an often overlooked possibility can be found in the use of modern automatic coupling of mine cars together with today's rubber cushioning devices.

Automatic couplers, such as the Willison Automatic Coupler, manufactured by National Malleable and Steel Castings Company of Cleveland, offer not only savings in time of movement of cars but also reduce the possibility of injury to personnel. More specifically, they eliminate danger inherent in the old link and pin method of hooking cars together.

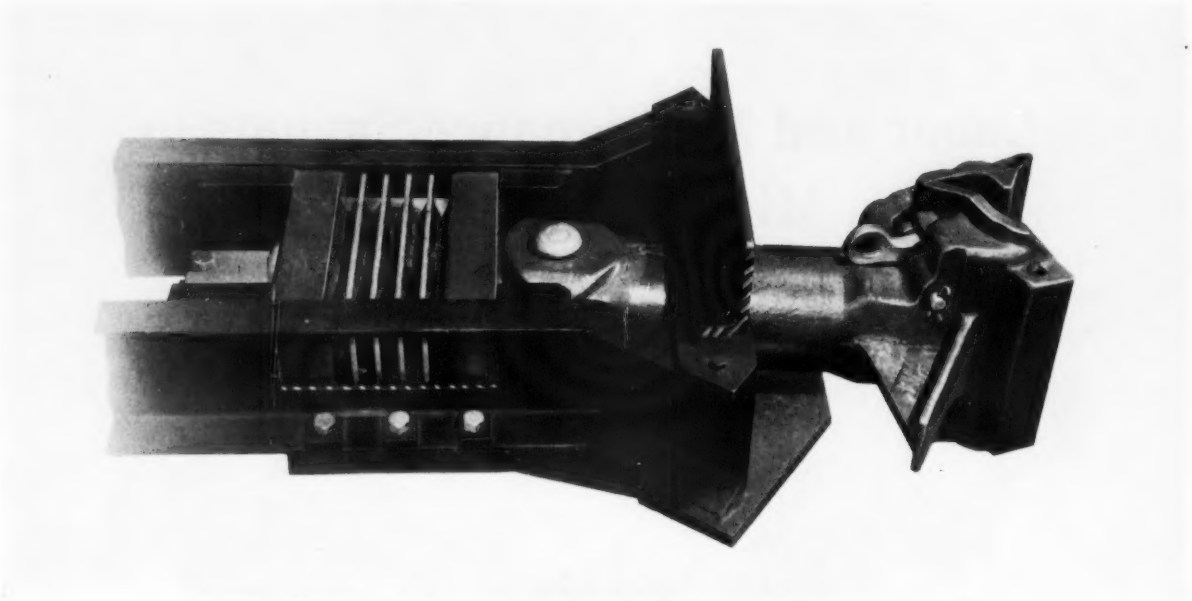
Willison Automatic Couplers can reduce upwards of 75 per cent of the time involved in shunting and movement of mine cars. In addition, uncoupling cars, by throwing a lever on the side of the car, removes need for mine personnel to go between cars and thus eliminates risk of personal injury should cars be inadvertently moved while the employee is between them.

Coupling of cars is even simpler since no presetting or after-operation is necessary. Regular movement of cars together is sufficient to interlock Willison Automatic Couplers.



Willison Couplers interlock automatically, uncouple quickly by throwing lever on side of car.

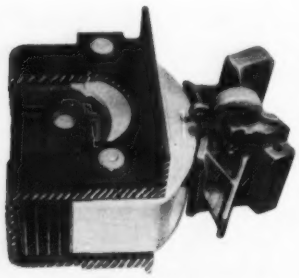
Simplified construction of Willison Coupler with only 4 working parts assures efficient operation.



Willison Coupler and Rubber Cushioning Device for rotary dump and 8-wheel cars.

RUBBER CUSHIONING DEVICES

Maintenance of mine cars is reduced through application of National Rubber Cushioning Devices, either in conjunction with Willison Automatic Couplers or as load suspension units.

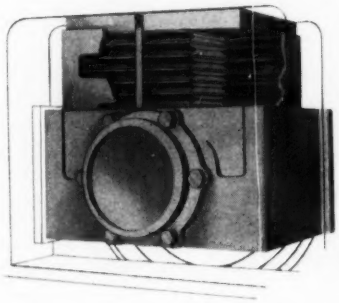


Performance of locomotives and drop bottom cars is improved by this National Malleable unit.

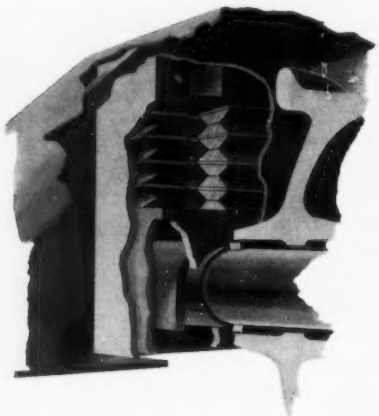
Used with Willison Couplers, rubber cushioning devices afford protection from cars bumping together either in transit or in the coupling operation. These rubber cushioning devices absorb a great deal of the car impact shock and reduce possibility of damage to car structure.

When used in load suspension units, rubber devices again absorb shock, both in loading and in transit.

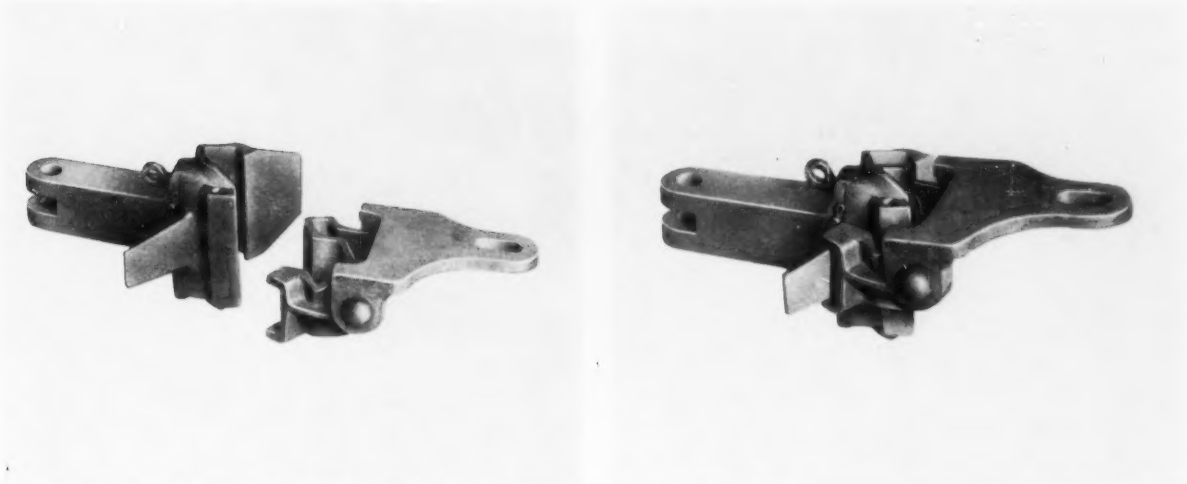
A number of mines have adopted the National Rubber Cushioning Devices in load suspension and also in conjunction with Willison Automatic Couplers. National also offers rubber cushioning devices for the old style link and pin operation.



Rubber cushioning load suspension unit on locomotive reduces pitching action and provides better stability.



Long overhang coal cars can carry larger loads, travel faster when equipped with National Rubber Cushioning load suspension units.



The Willison link and pin adaptor gives solid coupling while permitting gradual changeover to complete Willison use.

ENGINEERING SERVICE

Although both the Willison Automatic Coupler and the National Rubber Cushioning Devices have been applied to practically every type of mine car in existence today, each job is generally engineered specially to fit construction of the car or locomotive, or series of cars and locomotives.

In this respect, National's sales representatives and the engineering staff of National's Technical Center are available to study each case and make specific recommendations.

Where a gradual changeover from old style link and pin method of coupling to the modern Willison Automatic Couplers is desired, a number of accessories are available. These permit use of Willison Couplers while providing a satisfactory method of hooking to an old link and pin car. In addition, several devices can be attached to the Willison Coupler for cable hitching used on incline haulage, rerailing of cars and other odd pulling requirements.

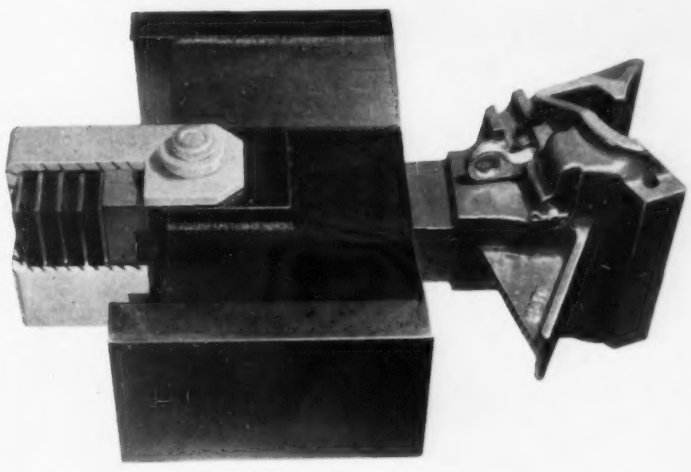
Well over 165,000 Willison Automatic Couplers have been placed in service over the past 40 years. National Rubber Cushioning Devices have seen equal acceptance in the 10 years since they were first introduced to the mining field. Their use is not limited by car or locomotive size, by construction or capacity.

FIT ALL TYPE CARS

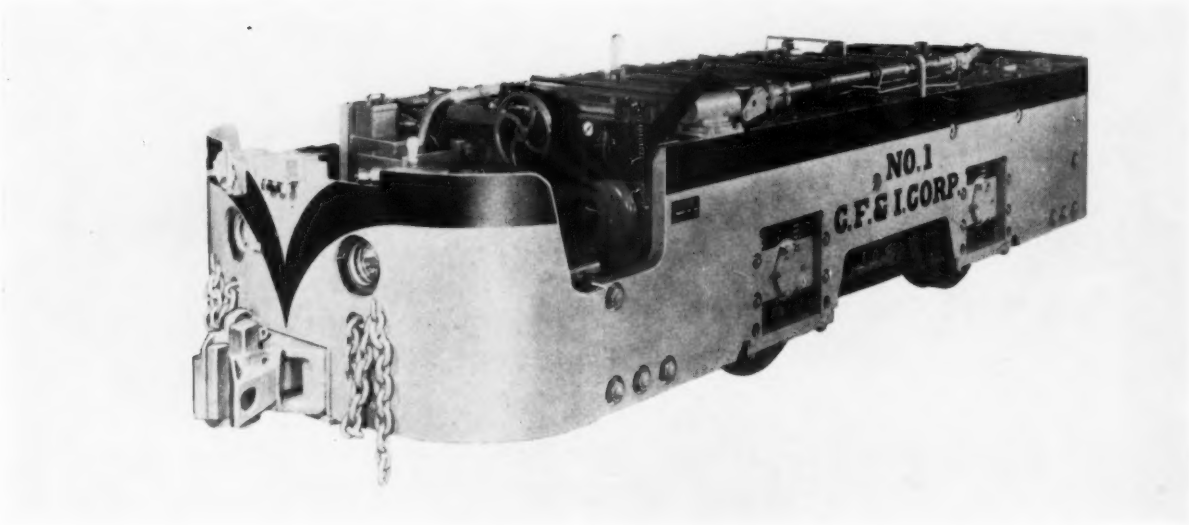
Willison's and National Rubber Cushioning Devices can be applied to cars from 1 to 30-ton capacity (and above). They are available with shanks to accommodate any type of car construction, cushioning arrangement or track requirement.

An important feature of Willison Couplers is that they do not have to be matched. Any Willison will couple with any other Willison. This means car ends automatically couple as they come together in any sequence.

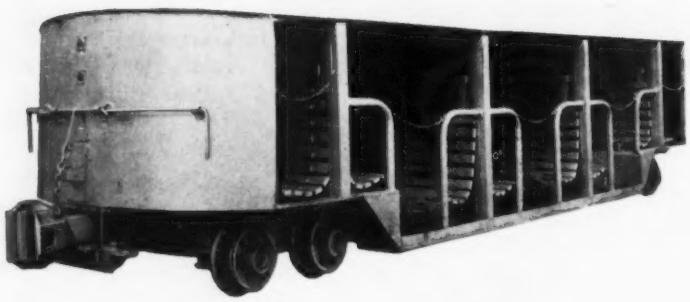
In looking for labor and maintenance savings, it would be advisable to investigate the advantages of automatic couplers and modern rubber cushioning devices—such as Willison Automatic Couplers and National Rubber Cushioning Devices.

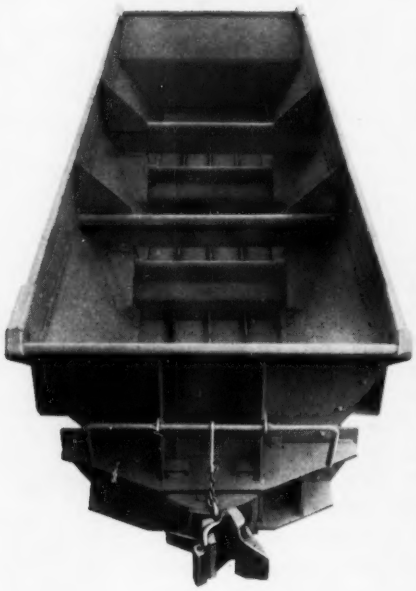


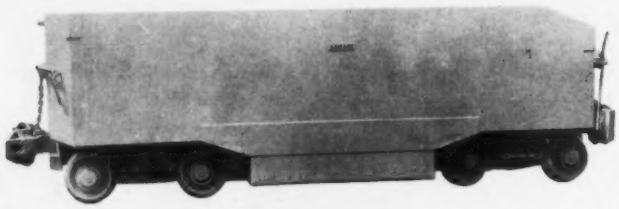
Typical of Willison Couplers and Rubber Cushioning Devices is this unit designed for 4-wheel cars.



Willison Automatic Couplers and Rubber Cushioning Devices, produced by National Malleable and Steel Castings Company, Cleveland, are adaptable to any type of car construction, cushioning arrangement or track setup. Haulage machinery utilizing this equipment includes locomotive (above), 8-wheel car (right), man car (below), rotary dump car (bottom left), and drop bottom car (lower right).







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Allis-Chalmers HD-21 used by A. P. Weaver & Sons, Fryburg.

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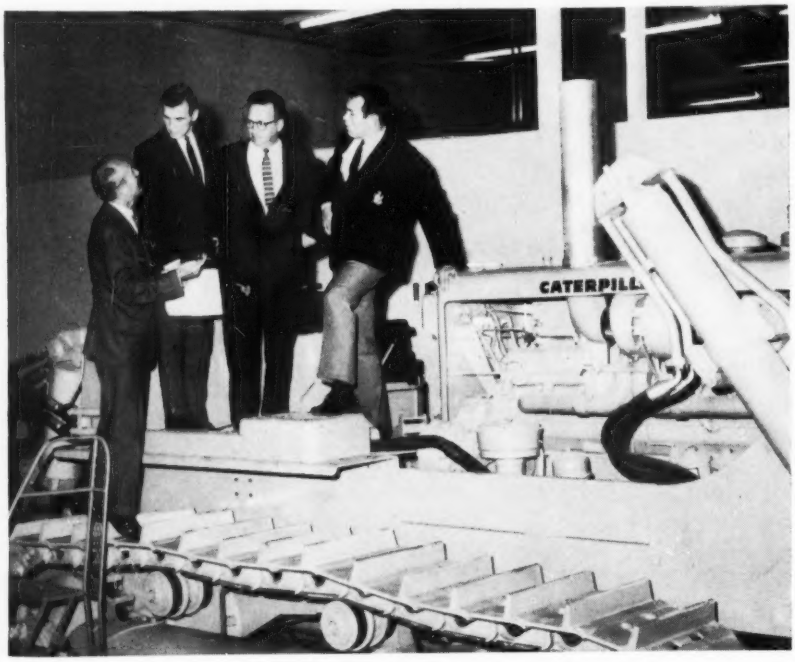


World's heavyweight champion Ingemar Johansson, right, discusses Cat D9 Series E Tractor with Oscar von Seeger, left, European division sales manager, on recent visit to Caterpillar Tractor Co. in Peoria. The champ, who also is a successful small contractor in Sweden, owns a Cat No. 955 Traxcavator, three power shovels and two trucks. Standing next to him is J. O. Sahlberg, a native of Sweden and a general foreman at Cat, while second from left is Rolfe, the champ's younger brother, who accompanied him to America.

• Most people know him as the world's heavyweight boxing champion. Relatively few, however, are aware that Ingemar Johansson is also a successful contractor based in Gothenburg, Sweden.

Ingo, as he is called, recently visited Caterpillar Tractor Co., in Peoria, Illinois, to see some of the plant facilities and visit with Caterpillar.

The modest but self-assured man who knocked Floyd Patterson and the boxing world for a loop last June has been a contractor since 1957. He purchased a Cat No. 955 Traxcavator that year. He also owns two Bucyrus-Erie shovels, a 38B and 22B with 1½ and ¾-yard buckets, a Swedish rubber-tired shovel with ½-yard bucket and two 7-ton Volvo trucks.

Ingo, who specializes in excavation and road construction, and also rents out his equipment, said, "Do not get the idea that I'm the biggest contractor in Sweden. But it is big construction work for me, you understand."

Soft-spoken, 27-year-old Ingo, the son of a stone cutter, is a busy and enterprising young man. In addition to his contracting firm, he operates a used car business, a fishing trawler, a correspondence school and a publishing company; makes recordings and occasionally models clothes and appears in Swedish films. The husky, handsome champion and his brother Rolfe, 23, also tour the country putting on boxing exhibitions. To handle his varied enterprises, he recently opened a branch office in Stockholm.

It is because of these many activities that Ingo often rents his earthmoving equipment to other contractors.

Ingo visited Peoria with brother Rolfe, his close friend Gustav von Reis, president, and H. R. Connor, executive vice president and general manager of the Detroit Broach Company of Detroit. His hosts at Caterpillar were C. A. Barabe, manager, Foreign Sales, and Oscar von Seeger, sales manager, European Division, Caterpillar Overseas C. A.

● Latest entry in the field of dump truck haulage is Differential Company's side dump "Wagon Train on Rubber", made up of a powered wagon with one, two, or more trailers. These patented wagon trains are built in two sizes, one for highway use with 15-ton capacity bodies, and a larger off-highway train with bodies carrying 25 tons each.

The Findlay, Ohio firm has been building side dumping vehicles since 1915, when it bought out an electric dump car for street railways. Its principal products today are large railway air dump cars for mining, railroad, and industrial use, and railway mine cars and locomotives with AXLESS Powered Wagons (trucks without axles).

Train with both Trailers dumped and Truck Dumping Load.

The on-highway Powered Wagons and trailers in the photographs have identical bodies 8 feet wide with 10 cubic yards capacity, and will dump to either side. A solenoid valve on each body is controlled from a switch in the cab, so that the driver can dump the individual loads without leaving the cab.

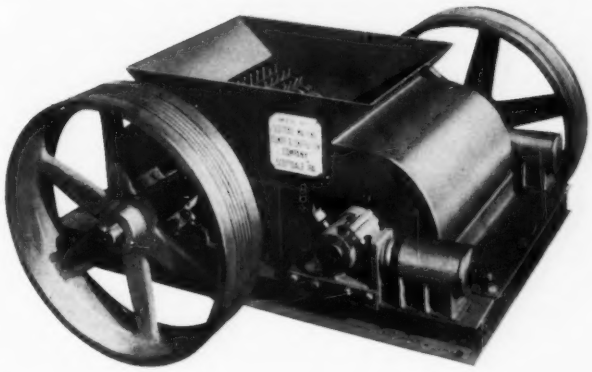
In the design of its "Wagon Train on Rubber" Differential has had the goal of providing the lowest haulage cost per ton of payload. The reduction in cost is accomplished in three ways:

(1) Convenient method of dumping. Dump clear of the roadway and keep moving.

(2) Increasing the load hauled by each driver. The side dumping feature, placing the dumped load clear of the path of the trailers, allows the use of multiple trailers. Truck engines of

(Continued on Page 25)

SCOTTDALE DOUBLE ROLL CRUSHERS



ECONOMICAL - *takes less power*

EFFICIENT - *more uniform product*

The powerful forged steel double rolls of the 63 special are covered with hundreds of steel teeth which speedily bite, chew and shred the coal to any wanted size from ¾" to 8" . . . fines are held to a low minimum.

This 2 motor drive machine has gears but is equipped with 2 easily maintained grooved flywheels. One welded steel hopper is mounted on a 46" x 65" welded steel base. Weighing only 4800 pounds and powered with 2—10 H. P. motors the crusher has a top speed of 150 RPM's with a capacity of 60 to 250 tons per hour. Comes with bronze bushed journal bearings.

Send for literature.

SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

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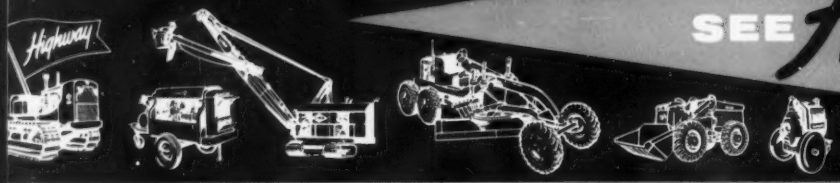
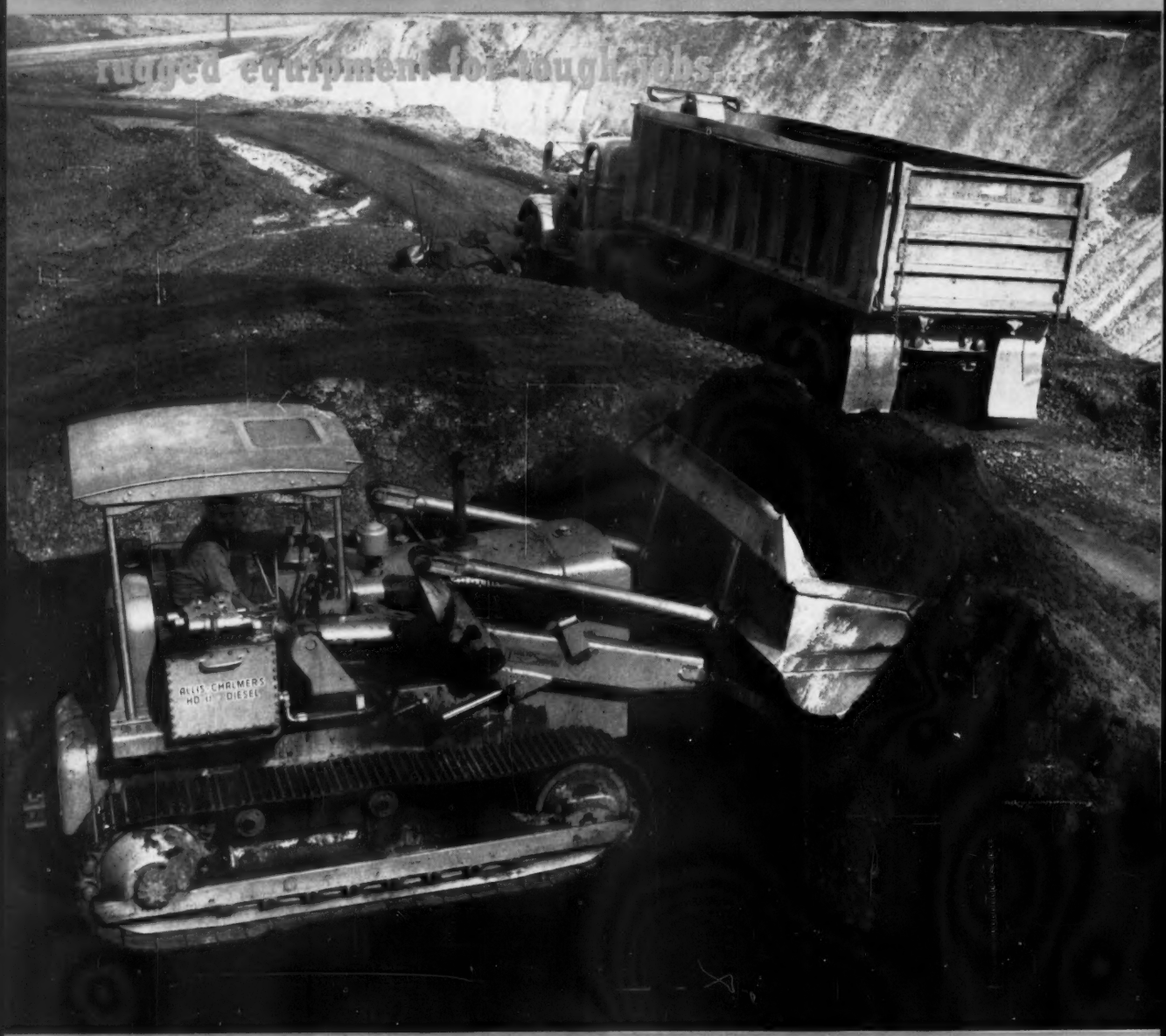
GUYAN MACHINERY CO., Logan, W. Va. stock SCOTTDALE CRUSHERS

For the best in all types of mining equipment...

SEE *Highway* FIRST!





Allis-Chalmers HD-11G at William Fiore mine, Russelton. In addition to this tractor, Fiore operates 4 other Allis-Chalmers units . . . HD-5G, HD-6G, HD-19 and HD-21.

AA-0480

Highway

HIGHWAY EQUIPMENT COMPANY

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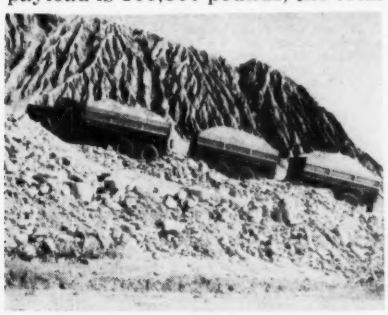
(Continued from Page 23)

the highest horsepower are featured, and as many trailers can be hauled as the steepness of road grades permits.

(3) Increasing the ratio of payload to tare weight. The tare weight of the Differential trailers is exceptionally low because only a short, light-weight underframe is needed when the wheels are located directly under the load. All-welded construction and the use of light-weight high-strength aluminum alloys provide additional weight saving. The tire, wheel and axle sizes are lightest in proportion to their load capacity. The rubber springs and long-travel coil springs used are lighter than the conventional leaf springs. The single-stroke hoist cylinders have a small diameter and long stroke, proportions that give the lightest weight.

The photograph shows a payload of 33,600 pounds of stone being carried in each body. The powered wagon weighs 14,300 pounds, for a ratio of payload to tare weight of 2.35 to 1. Each trailer weighs 5200 pounds; the ratio is 6.46 to 1. Obviously the ratio for the train increases with the number of trailers. For the powered wagon and two trailers as shown, the total payload is 100,800 pounds, the total tare weight is 24,700 pounds, and the overall, ratio of payload to tare weight is 4.08 to 1. Powered by a 256 HP V-8 gasoline engine, the train is shown climbing a 10 per cent grade.



Loaded Train on 10 Percent grade.

The bodies are tilted to a steep 55 degree dumping angle to clear sticky loads. Widely spaced body pivots and down-folding doors are features that place the dumped load clear of the tires for easy pull-away. The wide clear dumping gives added safety in dumping at the edge of fill, since the tires can be three feet inside of the edge and the side dumping will still throw all the material down the bank slope.

Three bodies can be dumped in less than 30 seconds, and it is not necessary to bring the train to a full stop. The wedge-shaped doors knife cleanly through piled material.

The trailers closely follow the track of the powered wagon on curves. On a 34 foot radius curve the first trailer tracks only 6 inches inside the truck; the second trailer, 12 inches.

Since each trailer can swing around to a 75 degree angle with the unit ahead, the train can turn around on a 40 foot road by back-

(Continued on Page 28)

HEAVY EXCAVATION EQUIPMENT

Draglines, Shovels, Cranes, Drills, Trucks

15-W Bucyrus-Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus Erie Elec. Drag, 160', 11½ yd.
9-W Bucyrus Erie Diesel Drag, 200', 9 yd.
7-W Bucyrus Erie Elec. Drag, 140', 7 yd.
7-W Bucyrus Erie Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175', 13 yd.
625 Page Diesel Drag, 150', 10 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus-Erie Diesel Drag, 125', 6 yd.
5-W Bucyrus-Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B Bucyrus-Erie Elec. Drag, 115', 5 yd.
111-M Marion Drag, 100', 4 yd.
1601 Lima, 4 yd., Shovel/Drag
3900, 3500 & 3000 Manitowoc Cranes
5560 Marion 26 yd. Elec. Shovel
750-B Bucyrus-Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
151-M Marion 7 yd. Elec. Shovel
170-B Bucyrus-Erie 6½ yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 4½ and 5½ Yd. H. L. Shovels
120-B Bucyrus-Erie 4 yd. Elec. Shovel
4500 Manitowoc 5 yd. H. L. Shovel
1201 Lima 3½ Yd. Standard Shovel
111-M Marion Standard & H. L. Shovels
3500 Manitowoc Standard & H. L. Shovels
54-B Bucyrus-Erie Standard & H. L. Shovels
Large selection of smaller Shovels and Draglines
Model T-650 Reich Heavy Truck Mounted Rotary and Down-The-Hole Drill
McCarthy & Compton Coal Auger Drills
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Made to Withstand High Drilling Speed Whip And Torsional Strain Of Electric Drills.

Drills holes faster — Will not snap off shank or chip points — Outlasts four or five ordinary augers.
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IF YOU TRADE BEFORE YOU SEE US — WE BOTH LOSE MONEY!

WE BUY — SELL — TRADE

JOY EQUIPMENT—REBUILT

1—Joy 14BU Loader, low pedestal, 7AE.
6—Joy 14BU Loaders, medium pedestal, 7RBE.
4—Joy 14-BU 3PE Loaders.
6—12BU10E Joy Loaders complete with Piggy Backs.
2—Joy 12BU Loaders, 9E, latest type.
1—Joy 20BU Loader, latest type.
2—Joy 11BU Loaders, latest type.
1—Joy 8BU Loader, 34" overall height.
2—Joy 8BU Loaders, 220 volt AC.
1—Joy curved Bar Head, complete.
6—Reliance 24-J Motors, 7½ H.P.
20—9-J Motors, 4 H.P.
2—Goodman 660 Loaders on Crawlers 440 volt DC, like new.
1—Goodman 660 Loader on Crawlers, excellent 250 V. DC.
1—Goodman 665 Loader on Crawlers, latest type 250 V. DC.
1—Goodman 865 Loader 26" hi. Rebuilt. 250 V. DC.
4—Joy 6SC Shuttle Cars, rebuilt.
3—Joy 6SC Shuttle Cars, latest type.
1—Joy 5SC Shuttle Car, Excellent
2—Joy 32E9 Shuttle Cars.
2—Joy 32E10 Shuttle Cars, rebuilt.
2—Joy 32E15 Shuttle Cars, rebuilt.
4—Joy 32E16 Shuttle Cars, rebuilt.
2—Joy 42E16 Shuttle Cars, rebuilt.
1—Joy CD-22 Drill, like new.
6—Joy T-2-5 low pan Crawler Trucks.
1—Joy T-2-6 low pan Crawler Truck with reel.
2—Joy T-1 Standard Crawler Trucks, 220 AC.
1—Joy T-1 Standard Crawler Truck, 250 DC.
2—Goodman low pan Crawler Trucks, like new latest type.
4—Joy 11-B Cutting Machines, like new, 35 and 50 H.P.
1—Joy 7-B Cutting Machine, like new, 250 volt DC.
2—Goodman 212 Cutting Machines, 19" high.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
1—Goodman Machine on Crawler, 31" high. All hydraulic.
6—Goodman 512 Machines with Bugdusters.
6—Goodman 612 cutting machines, 250 and 500 volt.
1—Lee Norse low vein Machine Carrier on rubber.
1—Jeffrey 70 URB rubber tired Cutter. Universal head, perfect condition.
1—Joy 11RU Rubber Tired Cutter with bugdusters, Universal heads, like new. 250 V DC.
2—Joy 10RU rubber tired cutters Universal head, 220/440 volt AC, perfect.
6—7AU's on track. Universal head.
2—Jeffrey 29UC Cutting Machines, Universal head, cuts anywhere in seam, 38" high, on Crawlers, 250 volt DC.
1—Jeffrey 29LC on Crawlers, rebuilt.

LOCOMOTIVES

1—Goodman 6 ton, 91-A, 27" high, armor plate frame
2—Jeffrey 13 ton, type MH-110, 36", 42" and 44" Ga.
2—Jeffrey, 10 ton, type MH-110, 42" and 44" Ga.
2—Jeffrey 10 ton type MH-78, 42" & 44" Ga.
2—Goodman 8-30 and 10-30 Locomotives, 26" above rail.
1—Jeffrey MH-124, 6 ton, 24" overall height.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
4—Jeffrey, 8 ton, type MH-100, 2½" armor plate frames.
1—Jeffrey, 6 ton, type 2186, 22" above rail.
3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
1—G. E., 4 ton, type 825 Locomotive, 22" high.
10—G.E., 6 ton, types 801, 803, 821 Locomotives, 42", 44" and 48" Ga.
1—G.E. 8 ton, type 822 Locomotive, 44" Ga.
3—G.E. 10 ton, type 809 Locomotives, 42", 44" 48" Ga.
2—Goodman, type 33, 6 ton, 44" and 48" Ga.
3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
2—Atlas Battery Locomotives, 36" Ga.
1—Atlas Trolley Locomotive, 4 ton, 24" high.
2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
2—Westinghouse, type 906, 44" and 48" Ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.
8—Jeffrey MH-78 Locomotive Units, cheap.
4—Jeffrey MH-88 Locomotive Units ,real bargains.
6—Jeffrey MH-100 Locomotive Units, reasonable.
3—Plymouth Diesel Locomotives, 8 and 10 tons, 42" and 44" Ga.
Locomotive Trucks and Spare Armatures for all the above.

TIPPLE EQUIPMENT

5—Complete Tipples, 3 to 5 track, steel and wood.
3—Cleaning Plants, 1 Ea. McNally, Roberts and Schaefer, Jeffrey, Washers and Airflo Tables.
4—complete Aerial Trams for coal or refuse.
3—complete Rope and Button Lines.
2—Monitor Lines complete with Drums, excellent.
3—Allis-Chalmers 5' x 12' Low-Head Vibrators.
2—Allis-Chalmers 5' x 12' Rippflo Vibrators.
1—Allis-Chalmers 4' x 12' Low-Head Vibrator
1—Robins Gyrex Vibrator 4x10.
10—Belt and Apron type Loading Booms.
6—Shaker Screens
1—Robins Car Shakeout.
20—Crushers, various sizes.
4—Mine Scales, 10 & 20 tons.
5—Truck Scales, 25 to 40 tons, late type.
Feeders, Belt and Drag Conveyors, Car Retarders, etc.

CUTTING MACHINES

2—Joy 10RU rubber tired cutters, Universal head, 220/440 volt A.C. Perfect.
2—Joy 11RU, rubber tired Cutters, 250 V. DC.
1—Jeffrey 70 URB Cutter, rubber tired, Universal Head, low vein.
2—Jeffrey 29UC Universal Machines on Crawlers.
1—Goodman on Crawlers, 31" overall height.
3—Baby Goodman 212's, rebuilt, 250 Volt DC.
2—Goodman 212 Cutting Machines, 19" high.
4—Goodman 312 Cutting Machines, 17" high.
3—Goodman 412 Cutting Machines, 19" high.
6—Goodman 512's with Bugdusters, like new.
4—Goodman 512's, rebuilt, or as removed from service.
3—Goodman 112's 220/440 volt AC.
1—Joy 7-B Cutting Machine, 250 volt DC.
4—Joy 11B Cutting Machines, rebuilt. 35 and 50 H. P.
6—7 AU's, on track, Universal head.
10—Goodman 12AA's and 112AA's, 250 volt DC.
2—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
2—Goodman, 824 Slabbers.
6—Jeffrey 35L's, like new, 17" high.
2—Jeffrey 35L's on low vein trucks.
15—Jeffrey 35B's and 35BB's.
2—Jeffrey 29B's on track.
2—Jeffrey 29C's, track mounted.
2—Jeffrey 29L's on Crawlers. Excellent.
3—Sullivan CE7, 220 volt AC.

CONVEYORS

2—Robbins 36" tandem drives with or without structure.
2—Joy 30" Underground Belt Conveyors, 500' to 2000' each. Excellent.
1—Goodman 97-C, 30" Conveyor, 1500' long.
2—Goodman 97-C, 26" Conveyors, 1,000' long.
3—Robbins 30" Belt Conveyors, 200' to 2000'.
4—Jeffrey 52-B, 30" Drive and Tail Assembly, complete.
2—Joy MTB 30" Drive and Tail Assembly, complete.
3—Goodman 97 HC 30" Drive and Tail Assemblies, complete.
4,000' Conveyor Belt, 36".
8,000' Conveyor Belt, 30".
4,000' Conveyor Belt, 26".
8—Jeffrey 61AM 12" Chain Conveyors, 300'.
2—61EW Elevating Conveyors.
2—61WH 15" Room Conveyors, 300'.
2—Joy 15" Room Conveyors, 300'.
2—Joy 20" Conveyors, 300'.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.
3,000' Goodman 18" Flat Belt Conveyors, tandem drive, any length, perfect.
2.500' Goodman 20" Flat Belt Conveyors, tandem drive, any length, perfect.

CONVERTERS AND DIESEL PLANTS

1—300KW Portable Rectifier, 3 card unit. Excellent.
2—500KW G. E. Stationary Rectifiers
4—1,000KW Stationary Rectifiers.
2—100KW, G.E. TCC-6's, 275 volt, Rotary Converters
1—150KW, G. E. HCC-6, 275 v., Rotary Conv.
1—150KW, 6 phase, Allis Chalmers Rotary Converter, 275 V. DC.
2—200 KW, G. E. HCC-6's Rotary Converters, 275 V. DC, Newly rewound.
3—300KW, G. E. HCC-6's Rotary Converters, 275 V. DC, like new
2—300KW Westinghouse, 6 phase, Rotary Converters, 275 volt DC.
2—500KW Westinghouse Rotary Converters, 275 volt DC.
2—200KW Westinghouse Rotary Converters, 275 V. DC. Newly rewound. (all the above with 6900/13000 and/or 2300/4000 primary transformers)
2—100 KW MG Sets, 275 volt DC.
2—150KW MG Sets, General Electric and Westinghouse, 275 V. DC.
1—200KW MG Set, Westinghouse, rebuilt, 275 V. DC.
1—200KW MG Set, General Electric, perfect. 275 volt DC.
2—300KW G. E. MG Sets, like new.
1—300KW Westinghouse, 600 volt, MG Set, rebuilt.
2—300KW Westinghouse, 600 volt, 6 phase, Rotary Converters.
2—500KW Westinghouse, 600 volt, DC, 6 phase, Rotary Converters.
2—500KW HCC-6's Rotary Converters, 6 phase, 600 volt DC.
1—GMC 471 Diesel with 60 KW, 250 volt DC Generator.
1—GMC-671 Diesel with 75 KW, 250 volt DC Generator.
1—Cummins 125 KW, Diesel with 250 volt DC Generator.
1—Allis Chalmers Natural Gas Engine with 100 KW Generator, 275 volt DC.
Boilers, like new, 500 H.P.

LOADING MACHINES

6—Joy 12BU with Piggy-Back Conveyors
16—Joy Loaders, 8BU, 11BU, 12BU, 14BU, 20BU.
2—Goodman 865 Loaders, 26" on Crawlers.
1—Goodman 665 Loader on Crawlers.
2—Goodman 660 Loaders, 440 volt AC perfect.
1—Goodman 660 Loader, on Crawlers.
1—Goodman 460 rebuilt, on track.
2—Jeffrey 61 CLR's, on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley, No. 3 Automatic Loaders
2—Clarkson Loaders, 26" above rail.

MISCELLANEOUS

5—Complete Tipples, 3 to 5 Track. Wood and Steel.
20—Jeffrey Molveyors on rubber tires.
1—¾ Yard Shovel and Back-Hoe.
1—¾ Yard Crawler Crane.
Battery Supply Tractors, rubber tired.
1—Cantrell Air Compressor on rubber tires.
10—Air Compressors, 1 H.P. to 40 H.P.
2—Joy self propelled rubber tired compressors, 240 cu. ft.
2—Acme self propelled rubber tired compressors, 130 cu. ft.
40 Mine Pumps, all types.
1—Differential 40 Passenger Man Trip Car.
6—MSA Rock Dusters.
2—Phillips, Carriers, 44" and 48" Ga.
1—Barber Greene self propelled Bucket Elevator.
Pipe, Plastic, Steel, Transit, all sizes 1" to 6".
300 Mine Cars, drop bottom, 42" Ga.
30 Mine Cars, drop bottom, 44" Ga.
100 Mine Cars, 18" high, end dump, 44" Ga.
300 Mine Cars, end dump and drop bottom, 20" high, 48" Ga.
1—10 ton Mine Car Scale with Recorder.
15—Brown Fayro HKL and HG Car Spotters.
1—Brown Fayro Hydraulic Car Spotter.
1—12 ton Differential Slate Larry.
Incline Hoists, 25 to 50 H.P.
1—Jeffrey 5' Aerodyne Fan, like new.
1—Jeffrey 6' Aerodyne Fan.
1—Jeffrey 8' Aerodyne Fan.
2—Storage Tanks, 4,000 Gallons.
2—Storage Tanks, 10,000 Gallons.
10,000 Five Gallon G. I. Cans, screw lids.
2,500 tons Relaying Rail, 25 lb., 30lb., 40lb., 50lb., 60lb., 70lb.
30—tons Copper—4/0 and 9 Section Trolley 1/0, 2/0, 4/0 Stranded.
Thousands of feet of rubber covered three conductor cable. All sizes.
300 Transformers from 1 to 300 KVA, 110 to 13,000 primary volts.
400 Electric Motors, 3 to 250 H. P.
Huge stock of Mine Supplies.
600 MSA Mine Lamps, Chargers, etc.
4—Mine Scales, 10 & 20 ton.
5—Truck Scales, 25 to 40 ton, late type.
Thousands of other items.

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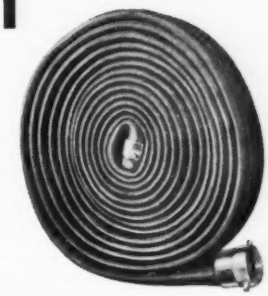
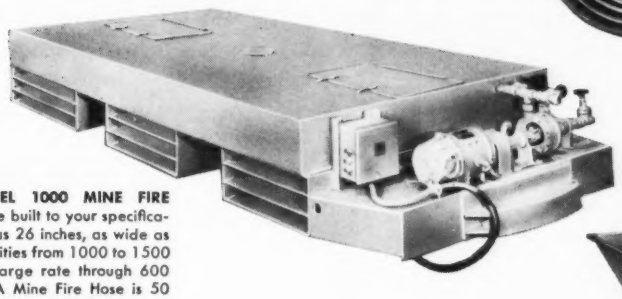
THESE MSA PRODUCTS HELP YOU FIGHT MINE FIRES INSTANTLY

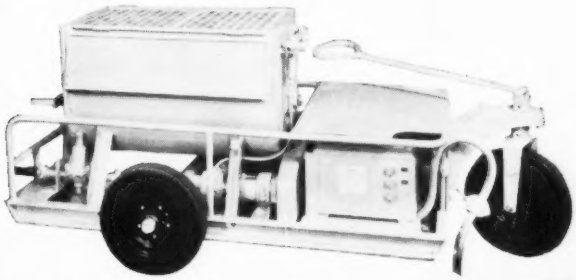


M-S-A MINE FIRE HOSE is especially designed for rugged mine use. It's impervious to rot and vermin. Never needs drying. Lightweight. Easy to handle. Dated and branded for your protection.

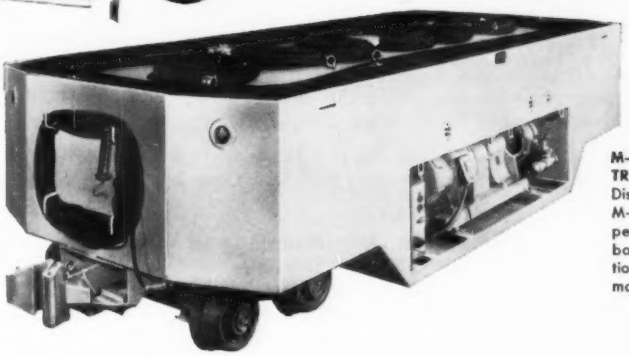


M-S-A BANTAM 400 ROCKDUST DISTRIBUTOR applies rockdust wet or dry. Availability of this machine in the working place, and the men's familiarity with its operation, make it ideal for fighting fires at their inception. Discharges dry dust through as much as 400 feet of hose at an average of 30 lb. per minute. Discharges wet dust at a rate of 50 lb. per minute through 150 feet of hose.

M-S-A MODEL 1000 MINE FIRE TRUCK can be built to your specifications: as low as 26 inches, as wide as 7 feet. Capacities from 1000 to 1500 gallons. Discharge rate through 600 feet of M-S-A Mine Fire Hose is 50 gallons per minute at 50 psi.



M-S-A SLURRY ROCK DUST DISTRIBUTOR can pump a slurry of rockdust and water—the cheapest fire-fighting agents for mine fires—through as much as 1000 feet of hose at the rate of 120 lb. per minute.



M-S-A MODEL 2100 MINE FIRE TRUCK has 2100-gallon capacity. Discharge rate through 600 ft. of M-S-A Mine Fire Hose is 91 gallons per minute at 150 psi. Tank is fully baffled with triple weld construction. Truck is designed for easy maneuverability.

Any delay in fighting a fire may prove disastrous. Often, the sealing of an entire mine or section results. Such an operation is not only hazardous. It's costly.

This threat to human lives and vital mining equipment, however, can be greatly reduced. You can do it with one or more of the indispensable items described above.

A minimum investment in MSA fire-fighting equipment *now*, may save you thousands of dollars later. Write us for helpful literature.

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Austin plastic connectors provide a quick fuse hook-up. Simply thread fuse from shot hole through length of connector and press trunk line into grooved slots. Then return branch line through end of connector on other side of trunk line and pull tight.

AUSTIN
Detonating Fuse

promotes blasting efficiency

Filled with a high explosive core, Austin Detonating Fuse possesses sufficient strength and speed to initiate an entire column of explosives . . . connects all holes with an effective detonating agent.

Austin Detonating Fuse is easy to handle, too. It's light in weight and flexible with a tough, waterproof coating that won't crack, chip or peel when being laid.

3 types—There's a type of Austin Detonating Fuse for virtually any purpose. Type 60 is standard. Type 100 is more powerful and for less sensitive explosives and blasting agents. Type 175 is for use with uncoated ammonium nitrates.

All 3 types are insensitive to shock, abrasion and strong electrical currents.

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ing twice during the turn, or a 68 foot road without backing.

The slack-free trailer connection is a sealed and lubricated heavy-duty ball joint. Door operating mechanisms, hinges, and hoist cylinders are fitted with lubricated hardened pins and bushings to eliminate wear and keep doors tight.

The larger off-highway Differential wagon trains are powered by diesel engines 300 or 385 HP, and also feature much higher ratios of payload to tare weight than conventional off-highway mining and earth-moving trucks. Alloy steel bodies are used to withstand loading by large shovels.

With its load distributed over numerous axles, the Differential off-highway wagon train has low wheel loadings. This means reduced damage to private industrial and mining roads. Lower cost pavement may be used.

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Consulting Mining Engineer

Specializing: —

Cost Control ---- Management
Modern Mine Mechanization Systems
Economic Surveys ---- Appraisals
Domestic ---- & ---- Foreign Work

2505 Windgate Road
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CATERPILLAR'S **No. 1** PROJECT *

NEW CAT POWER SHIFT TRANSMISSION FOR D9 AND D8 TRACTORS

- **Shifts on-the-go under full load in a split-second!**
- **Changes speed, reverses direction with finger-tip control lever—and no clutching!**
- **Increases production on any application!**

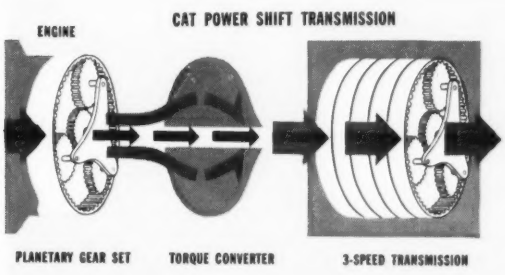
The wraps are off—it's ready. After many years of research and on-the-job testing, Caterpillar now offers a revolutionary new transmission option for D9 and D8 Tractors —*power shift!* Built for heavy-duty tractor service, this new transmission—with an exclusive design—provides production highs never before possible with a track-type tractor. Here's why:

1. It combines for the *first* time the flexibility and anti-stall features of a torque converter with the operating snap of direct drive. And because of its direct drive characteristics, it is more efficient than other power shift designs.

2. With one control lever and no clutching, it reverses direction . . . changes speed . . . smoothly . . . under full load . . . in a fraction of a second.

Talk about productivity—the Cat power shift transmission delivers plenty of power . . . fast . . . in the highest gear possible. And shifting is so easy the operator just naturally gets more work out of the tractor. What's more, he gets it on the toughest, most demanding jobs.

Caterpillar power shift transmission comes to you thoroughly tested by exacting design and demanding field work in the heaviest earthmoving duty. In addition, you also have your choice of direct drive or torque converter in the D9 or D8. Whatever your application, Caterpillar has the most productive machine to match the job.



BASIC DESIGN: Total power is transmitted from the engine to a planetary gear arrangement mounted in the engine flywheel. The planetary divides and directs the total power – part goes through a direct drive shaft straight to the transmission and the remainder through a torque converter to the transmission. This division of power retains the best features of both direct and torque converter drive tractors and delivers unexcelled performance on the toughest jobs.

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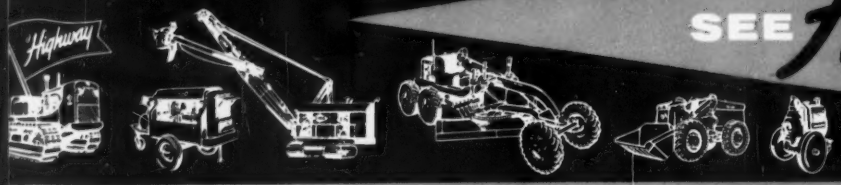

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AA-9713

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